



CASE PW/3-22082/P2/GC 2041

CERTIFICATE OF MAILING

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*Deborah A. Pinori*  
Type or print name

*Deborah A. Pinori*  
Signature

*5/22/03*  
Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF

GLEN T. CUNKLE ET AL

APPLICATION NO: 09/658,924

FILED: SEPTEMBER 11, 2000

FOR: CHLOROHYDRIN AND CATIONIC

COMPOUNDS HAVING HIGH AFFINITY

FOR PULP OR PAPER

Group Art Unit: 1731

Examiner: Marc S. Alvo

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TC 1700

Mail Stop Appeal Brief – Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

This appeal is from the final rejection of claims 1-10 of the Office Action, Paper No. 13, dated December 18, 2002.

The Notice of Appeal was mailed to the U.S. Patent and Trademark Office by first class mail with a Certificate of Mailing on February 27, 2003. The return receipt postcard accompanying the Notice of Appeal was date stamped in the PTO mail room March 5, 2003, making this Brief due on May 5, 2003. A petition for a one month extension of time is attached herewith, extending the period for timely response to June 5, 2003.

05/28/2003 JBALINAN 00000064 09658924

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The Commissioner is hereby authorized to charge any necessary fee or credit any overpayment to Deposit Account No. 03-1935.

**1. Real Party of Interest**

The real party of interest, by virtue of an assignment not yet recorded in the U.S. Patent & Trademark Office is:

Ciba Specialty Chemicals Corp.  
P.O. Box 2005  
540 White Plains Road  
Tarrytown, New York 10591

**2. Related Appeals and Interferences**

To the knowledge of the undersigned, there are no related appeals or interferences.

**3. Status of the Claims**

Claims 1-10 are pending in this application and are under consideration.

Claim 1 is independent.

Claims 1-10 are finally rejected in an Office Action, Paper No. 13, dated December 18, 2002.

**4. Status of the Amendments**

Original claims 1-10 have not been amended at any point during prosecution.

Appealed claims 1-10 are present in an attached appendix.

The specification was amended in the Amendment filed September 17, 2001.

## **5. Summary of the Invention**

The present application relates to chlorhydrin or cationic compounds having nitroxide or hydroxylamine moieties. The compounds have a high affinity for pulp or paper, and are effective towards preventing the loss of brightness and for enhancing resistance to yellowing in pulp or paper, especially that which still contains lignin. This performance is further enhanced by the presence of one or more coadditives selected from the group consisting of the UV absorbers, the polymeric inhibitors, the nitrones, the fluorescent whitening agents and metal chelating agents. Combinations of hydroxylamines or their salts, benzotriazole or benzophenone UV absorbers and a metal chelating agent are particularly effective.

## **6. Issues**

Two issues are presented for review:

Whether claims 1-10 are obvious under 35 USC 103(a) over WO 99/05108 and

Whether claims 1-10 warrant a 35 USC 112, first paragraph rejection as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Likewise, the Amendment filed September 17, 2001 is objected to under 35 USC 132 as introducing new matter to the specification.

## **7. Grouping of the Claims**

Claims 1-10 are argued as a group for the two issues regarding the claims and therefore stand or fall together.

## **8. Argument**

### **Rejections under 35 USC 112, first paragraph**

### **Objections under 35 USC 132**

Claims 1-10 are rejected under 35 USC 112, first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Likewise, the Amendment filed September 17, 2001 is objected to under 35 USC 132 as introducing new matter to the specification.

Said Amendment corrected the nomenclature of the compound of working Example 18 on page 30 of the specification. The Amendment does not add new matter, rather it corrects a nomenclature error. As the compound of Example 18 is stated to be prepared according to Example 16 replacing propyl bromide with 1,6-dibromohexane and provides a compound with a mass of 651, it is apparent that the original nomenclature was incorrect. The term "propyl" was deleted and the correct term "ethyl" was inserted.

A schematic of the reaction sequence was submitted with the Response after Final Rejection filed February 20, 2002.

A Declaration under Rule 132 by Dr. Glen Cunkle was attached to the Response filed October 7, 2002, in which it is stated that the compound N,N,N',N'-tetramethyl-N,N'-bis-[3-(1-oxyl-2,2,6,6-tetramethylpiperidin-4-yloxy)-ethyl]-hexamethylenediammonium dibromide is the only compound obtained by the procedure of present Example 18.

The inventors therefore, certainly had possession of N,N,N',N'-tetramethyl-N,N'-bis-[3-(1-oxyl-2,2,6,6-tetramethylpiperidin-4-yloxy)-ethyl]-hexamethylenediammonium dibromide at the time the application was filed.

Appellants submit that the amendment correcting the name of the compound of working Example 18 does not introduce new matter, but rather simply harmonizes the disclosure of the specification.

Further, such amendment does not change the scope of the claims when read in view of the specification. Both the incorrect "propyl" and the correct "ethyl" compounds fall within the scope of generic formula VIII of claim 1.

In view of this discussion and the Cunkle Declaration, Appellants submit that the 35 USC 112, first paragraph rejections and the 35 USC 132 objections are addressed and are overcome.

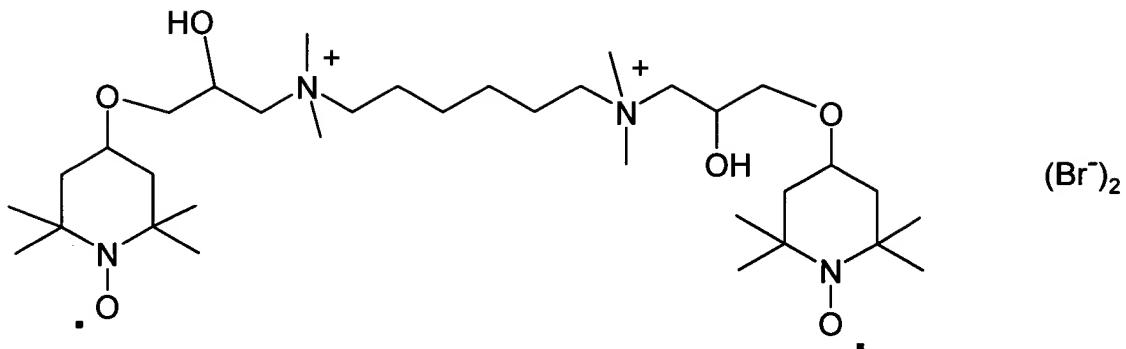
### **Claim Rejections under 35 USC 103(a)**

Claims 1-10 are rejected under 35 USC 103(a) as obvious over WO 9905108 (WO '108).

Appellants respectfully traverse these rejections.

The Examiner states that compound (g) on page 55 of WO '108 is N,N,N',N'-tetramethyl-N,N'-bis-[3-(1-oxyl-2,2,6,6-tetramethylpiperidin-4-yloxy)-**propyl**]-hexamethylenediammonium dibromide. It is not, but rather is N,N,N',N'-tetramethyl-N,N'-bis-[3-(1-oxyl-2,2,6,6-tetramethylpiperidin-4-yloxy)-**2-hydroxypropyl**]-hexamethylenediammonium dibromide.

The structure of compound (g) of WO '108 is provided below:



The present compounds of formula VIII do not have any secondary hydroxy groups as does this compound. There is no overlap of the compound (g) of page 55 of WO '108 with the compounds of the present claims.

Further, there is no possible overlap of the compounds of the present claims with those disclosed in WO '108.

In light of the fact that there is no possible overlap of the compounds of the present claims with the disclosure of WO '108, Appellants submit that the present claims cannot be obvious thereover.

In view of this discussion, Appellants submit that the 35 USC 103(a) rejections of the claims are addressed and are overcome.

Appellants also point out that U.S. Patent No. 6,254,724, submitted with the RCE April 29, 2002, is equivalent to WO 9905108.

Appellants aver that the present objections and claim rejections are in error as outlined above and respectfully request that they be reversed.

Respectfully submitted,



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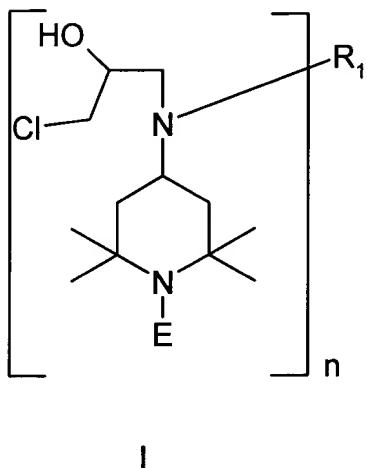
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Attachments: Appendix with claims on appeal

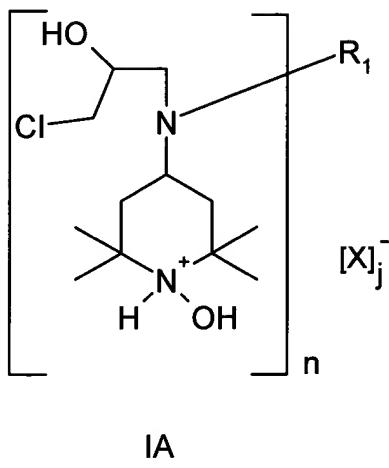
Transmittal Letter

9. Appendix Appealed claims 1-10

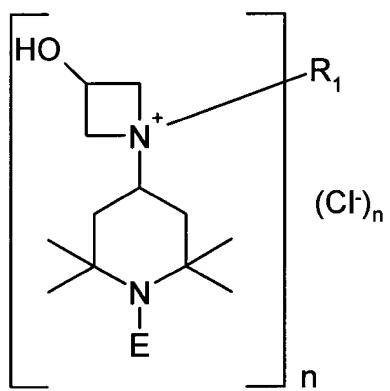
1. A compound of any of formulas I to X, or IA to XA



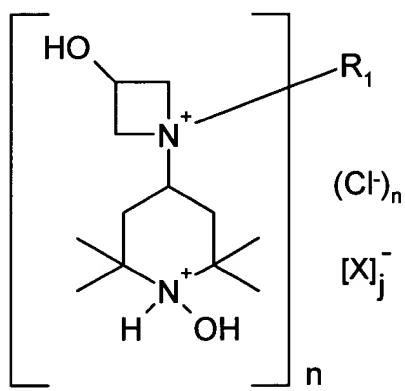
I



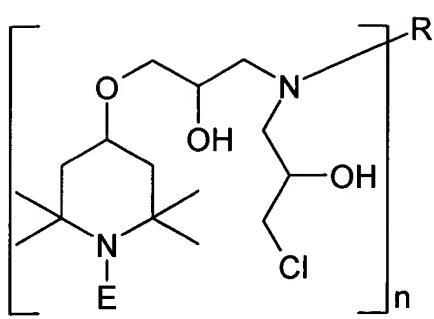
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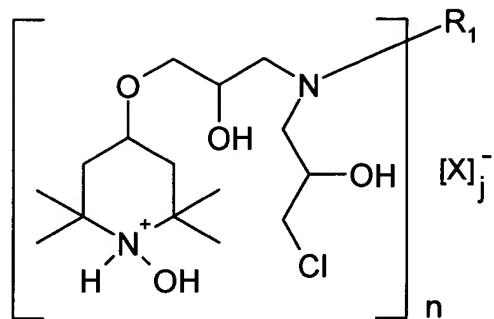
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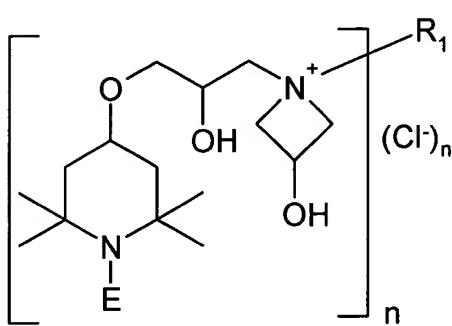
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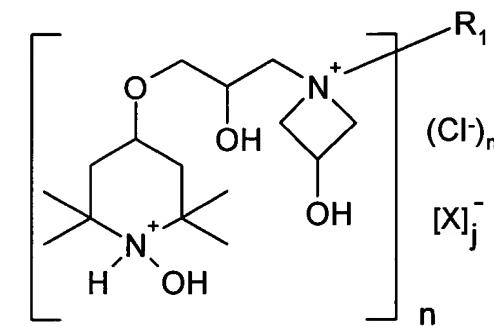
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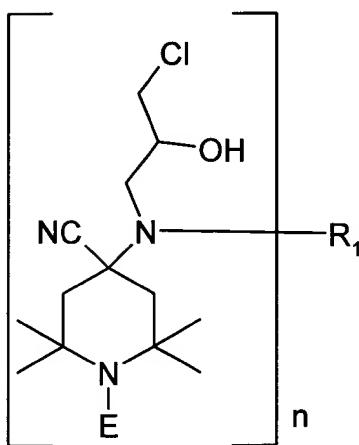
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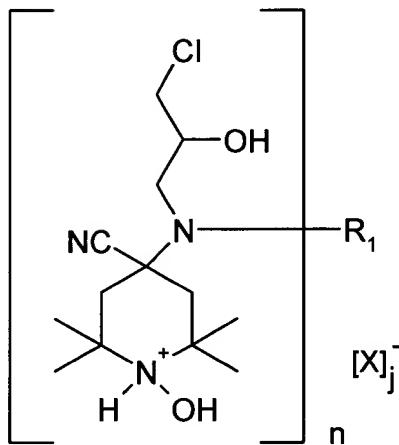
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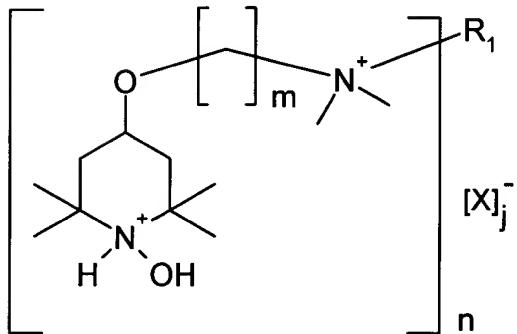
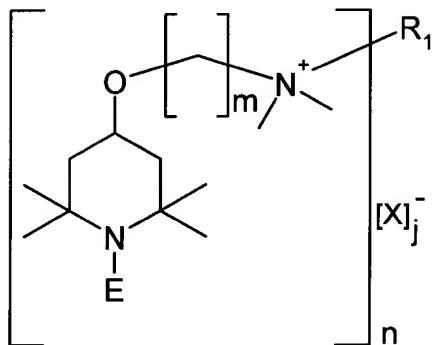
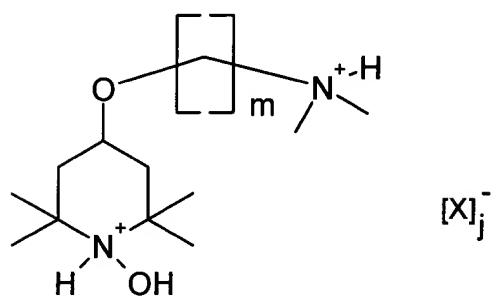
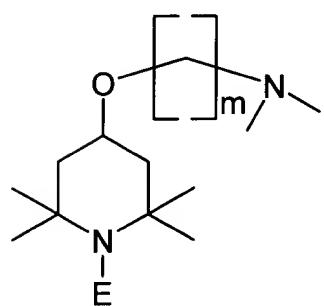
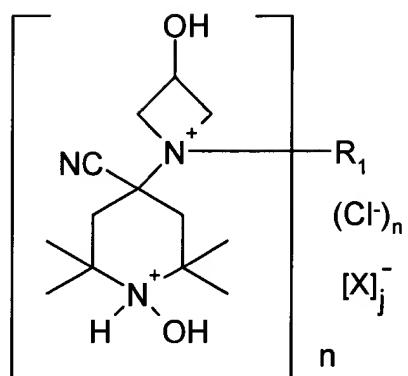
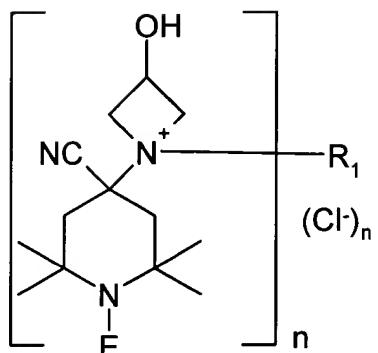
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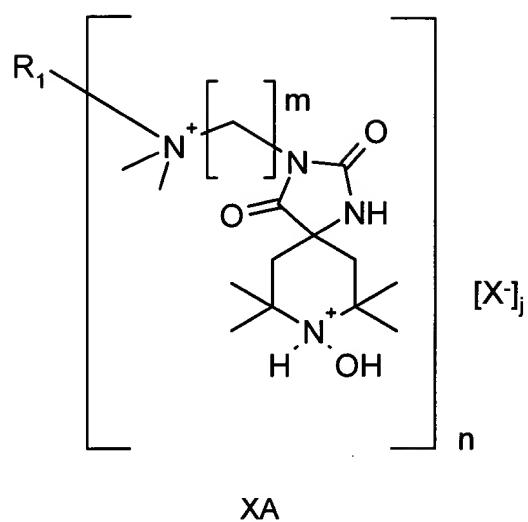
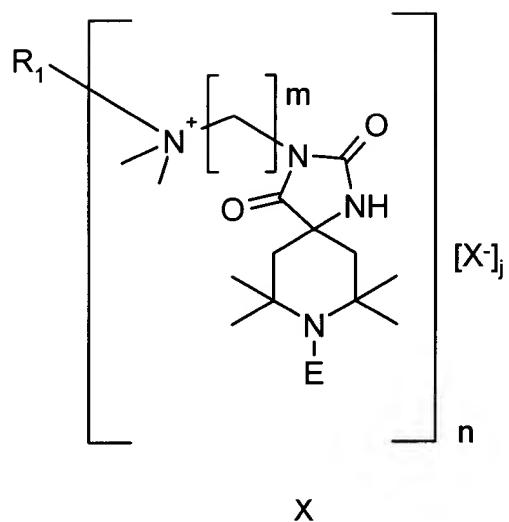
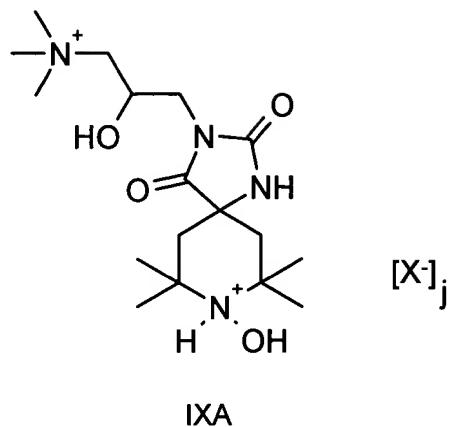
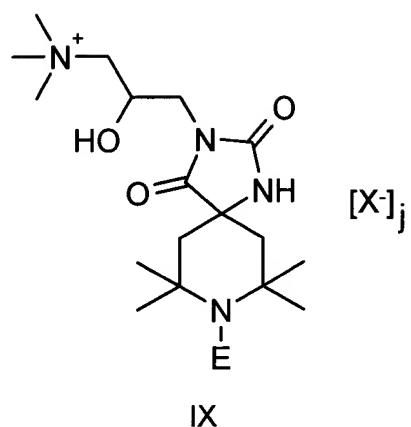


V

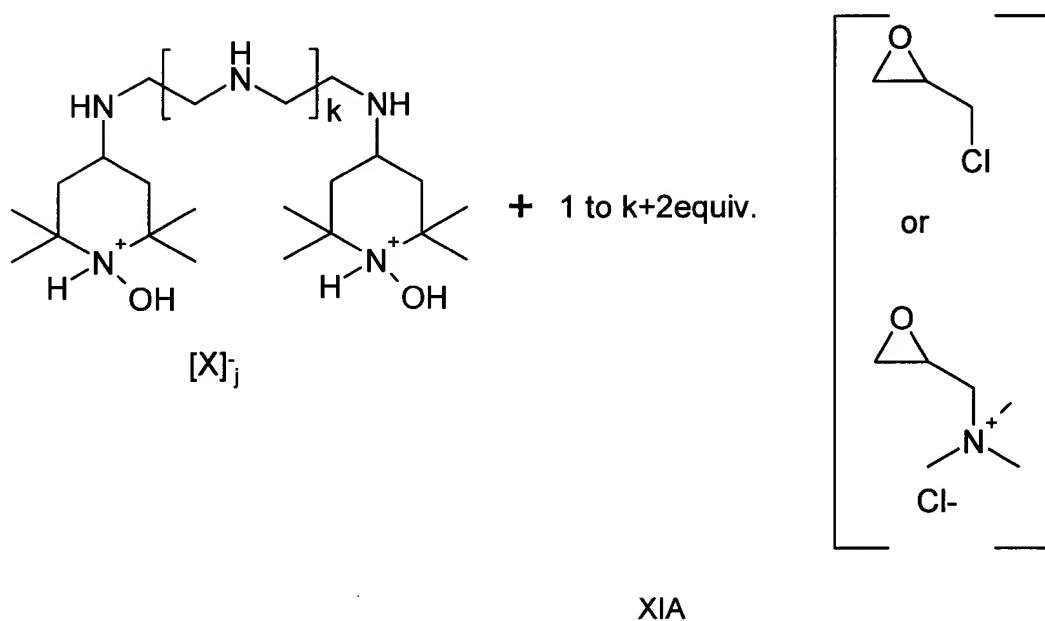
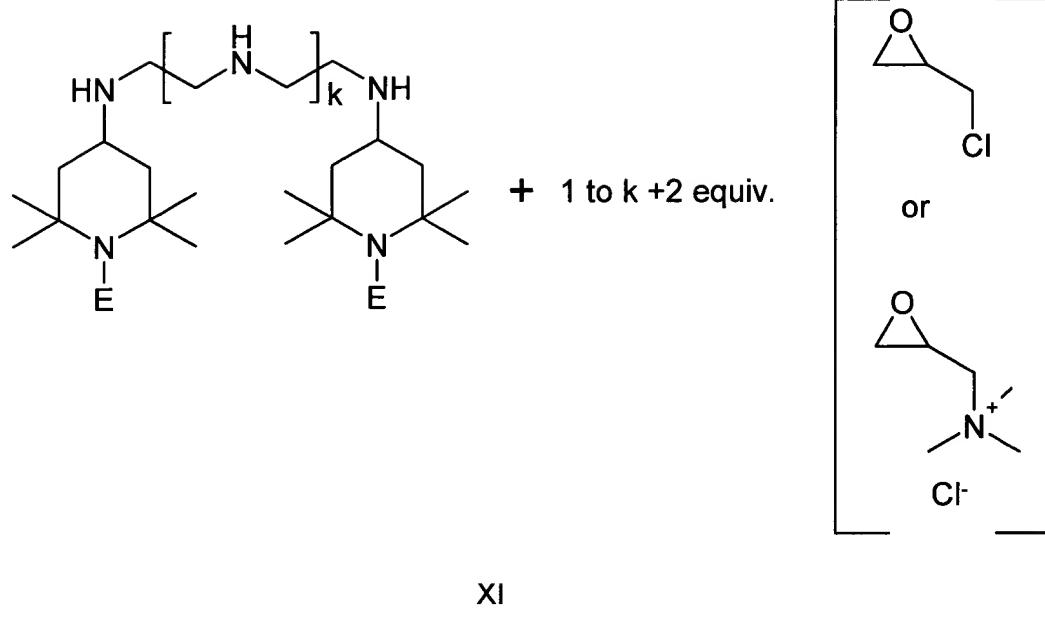


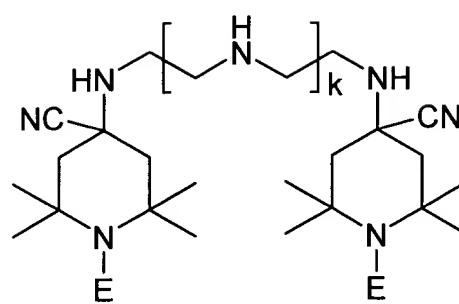
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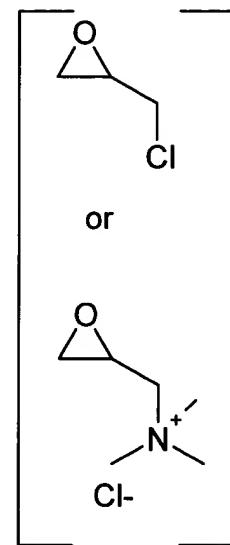


or a product of one of the following reactions XI to XVI or XIA to XVIa

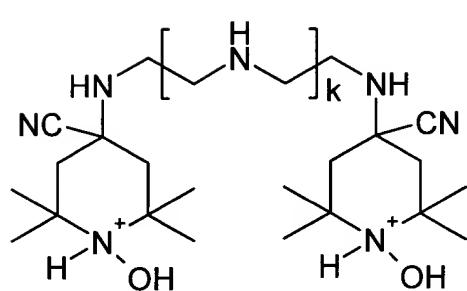




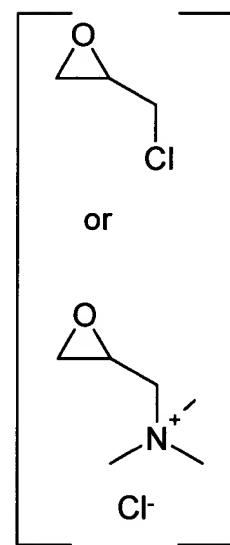
+ 1 to  $k+2$  equiv.



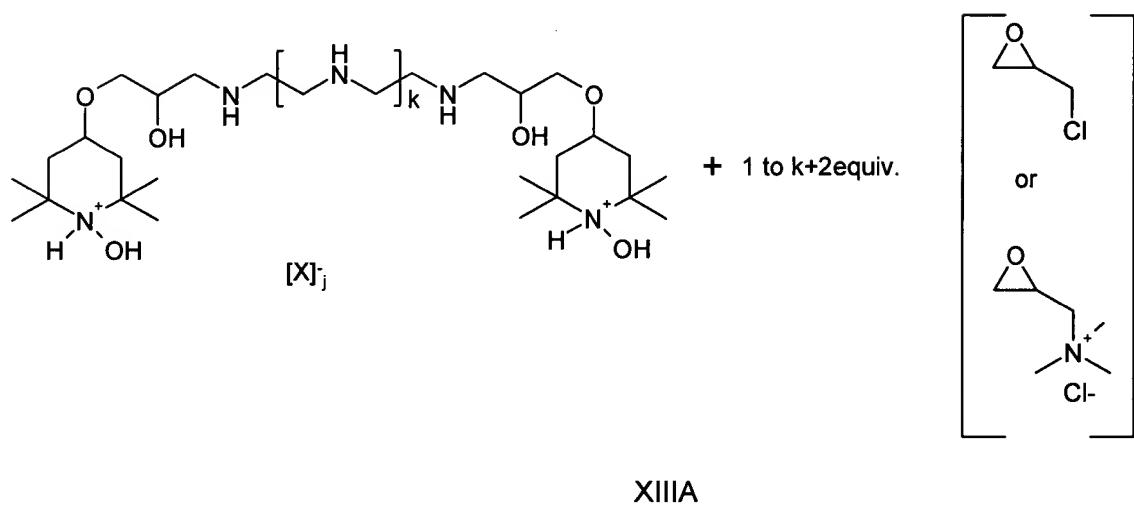
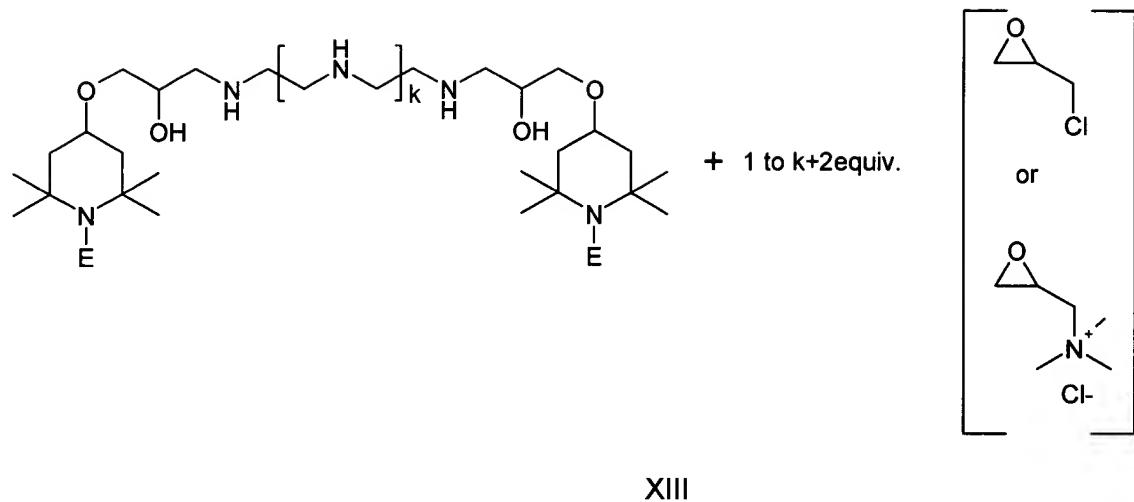
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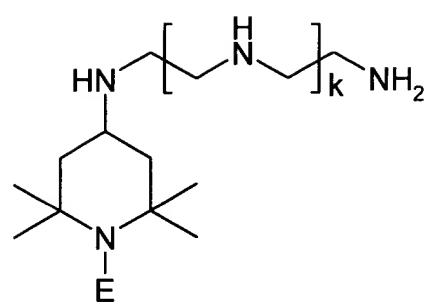


+ 1 to  $k+2$  equiv.

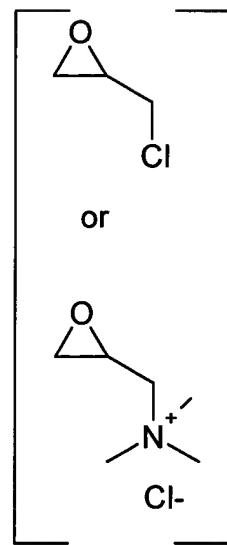


XIIA

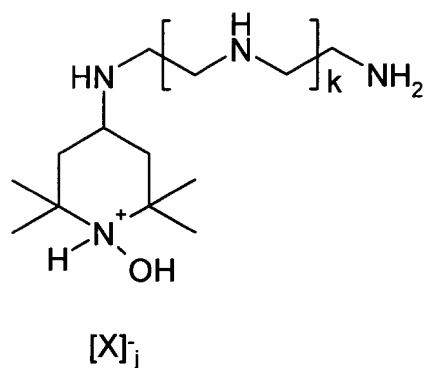




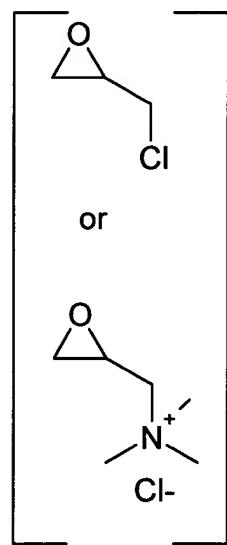
+ 1 to  $k+2$  equiv.



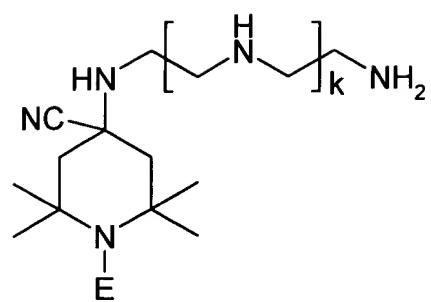
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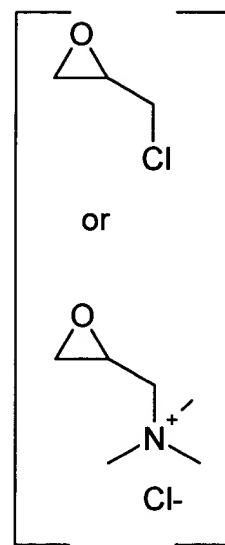
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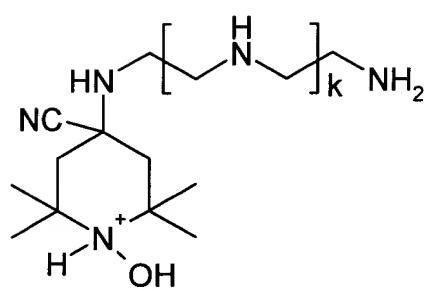
XIV A



+ 1 to k+2 equiv.

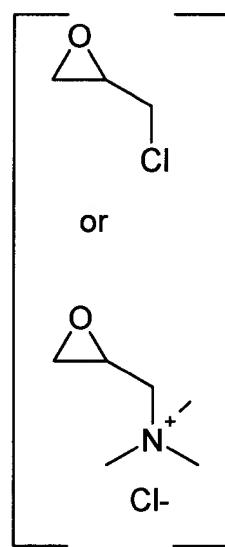


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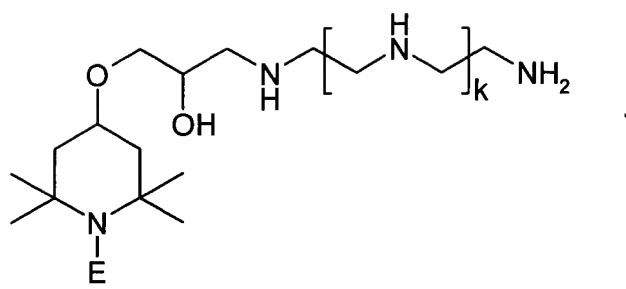


$[X]^-_j$

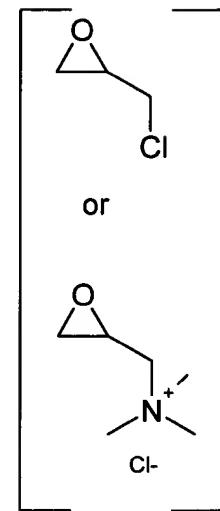
+ 1 to k+2 equiv.



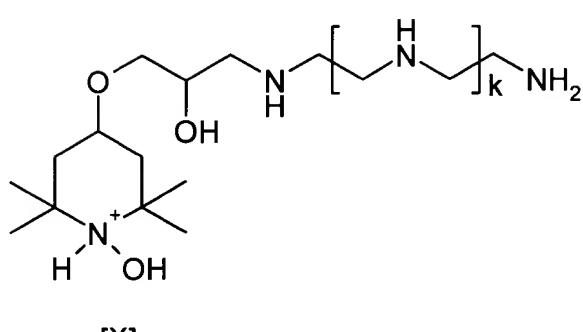
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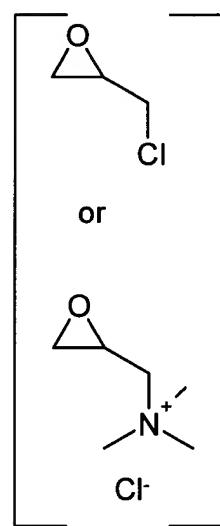
+ 1 to k+2equiv.



XVI



+ 1 to k+2equiv.



XVIA

where

k ranges from 1 to 10; n is 1 or 2; and m ranges from 2 to 6;

E is oxyl, hydroxyl, hydrogen, alkyl, alkyl substituted by hydroxyl, by oxo or by carboxy, alkyl interrupted by oxygen, by -COO- or by -OCO-, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, bicycloalkyl, alkoxy, alkoxy substituted by hydroxyl, by oxo or by carboxy, alkoxy interrupted by oxygen, by -COO-

or by -OCO-, cycloalkoxy, alkenyloxy, cycloalkenyloxy, aralkyl, aralkoxy, acyl, RCOO-, ROCOO-, RNCOO- or chloro where R is an aliphatic or aromatic moiety,

when n is 1,

R<sub>1</sub> is hydrogen, alkyl of 1 to 18 carbon atoms, alkenyl of 2 to 18 carbon atoms, propargyl, glycidyl, alkyl of 2 to 50 carbon atoms interrupted by one to twenty oxygen atoms, alkyl of 2 to 50 carbon atoms substituted by one to ten hydroxyl groups or both interrupted by said oxygen atoms and substituted by said hydroxyl groups, or

R<sub>1</sub> is alkyl of 1 to 4 carbon atoms substituted by a carboxy group or by -COOZ where Z is hydrogen, alkyl of 1 to 4 carbon atoms or phenyl, or where Z is said alkyl substituted by -(COO<sup>-</sup>)<sub>n</sub>M<sup>n+</sup> where n is 1-3 and M is a metal ion from the 1st, 2nd or 3rd group of the periodic table or is Zn, Cu, Ni or Co, or M is a group N<sup>n+</sup>(R<sub>2</sub>)<sub>4</sub> where R<sub>2</sub> is hydrogen, alkyl of 1 to 8 carbon atoms or benzyl, or

when n is 2,

R<sub>1</sub> is alkylene of 1 to 12 carbon atoms, alkenylene of 4 to 12 carbon atoms, xylylene or alkylene of 1 to 50 carbon atoms interrupted by one to twenty oxygen atoms, substituted by one to ten hydroxyl groups or both interrupted by said oxygen atoms and substituted by said hydroxyl groups,

X is an inorganic or organic anion, where the index j in formulae I to VIA equals n divided by the valency of X, and in formulae VIIA to XVIA equals the number of ammonium ions in the formula divided by the valency of X; and

the total charge of cations is equal to the total charge of anions.

2. A compound according to claim 1 wherein the anion X is phosphate, phosphonate, carbonate, bicarbonate, nitrate, chloride, bromide, iodide bisulfite, sulfite, bisulfate, sulfate, borate, formate, acetate, benzoate, citrate, oxalate, tartrate, acrylate, polyacrylate, fumarate, maleate, itaconate, glycolate, gluconate, malate, mandelate, tiglate, ascorbate, polymethacrylate, a carboxylate of nitrilotriacetic acid, hydroxyethylethylenediaminetriacetic acid, ethylenediaminetetraacetic acid or of

diethylenetriaminepentaacetic acid, a diethylenediaminetetraacetic acid or of diethylenetriaminepentaacetic acid, an alkylsulfonate or an arylsulfonate.

**3.** A compound according to claim 1 wherein E is selected from oxyl, hydroxyl, C<sub>1</sub>-C<sub>18</sub>alkoxy; C<sub>3</sub>-C<sub>18</sub>alkoxy substituted by hydroxyl, oxo or carboxy or interrupted by oxygen or carboxy; C<sub>5</sub>-C<sub>12</sub>cycloalkoxy; C<sub>3</sub>-C<sub>12</sub>alkenyloxy; cyclohexenyloxy; aralkyl or aralkoxy of 7 to 15 carbon atoms; C<sub>1</sub>-C<sub>12</sub>acyl; R(C=O)O<sup>-</sup>, RO(C=O)O<sup>-</sup>, RN(C=O)O<sup>-</sup>, where R is C<sub>1</sub>-C<sub>18</sub>alkyl, phenyl, C<sub>7</sub>-C<sub>15</sub>phenylalkyl, cyclohexyl, C<sub>2</sub>-C<sub>3</sub>alkenyl.

**4.** A compound according to claim 1 of formula I, IA, II, IIA, IV, IVA, VII, VIIA, VIII, VIIIA, IX, IXA, or the reaction product XI or XIA.

**5.** A compound according to claim 4, wherein  
k is 1 or 2; m is 2 or 3;  
E is oxyl, hydroxyl, or C<sub>1</sub>-C<sub>8</sub>alkyl;  
R<sub>1</sub>, when n is 1, is H or C<sub>1</sub>-C<sub>8</sub>alkyl, or, when n is 2, is alkylene of 2-12 carbon atoms; and  
X is chloride, bromide or citrate.

**6.** A process for preventing the loss of brightness and for enhancing resistance to yellowing of a pulp or paper, which comprises

treating said pulp or paper with an effective stabilizing amount of a compound of any of formula I to X or IA to XA or a product as defined in any of formula XI to XVI or XIA to XVIa according to claim 1.

**7.** A process according to claim 6 wherein the effective stabilizing amount of the compound of claim 1 is 0.001 to 5% by weight based on the pulp or paper.

8. A process according to claim 6 wherein the pulp or paper is additionally treated with an effective stabilizing amount of at least one coadditive selected from the group consisting of the UV absorbers, the polymeric inhibitors, the sulfur containing inhibitors, the phosphorus containing compounds, the nitrones, the benzofuran-2-ones, fluorescent whitening agents, hindered amine hydroxylamines and salts thereof, hindered amine nitroxides and salts thereof, hindered amines and salts thereof, benzofuran-2-ones and metal chelating agents.

9. A process according to claim 8 wherein the coadditive is selected from the group consisting of UV absorbers selected from the benzotriazoles, the s-triazines, or the benzophenones; polymeric inhibitors; sulfur containing inhibitors; phosphorus containing compounds; benzofuran-2-ones; and metal chelating agents; and the amount of coadditive is 0.001 to 5% by weight based on the pulp or paper.

10. A process according to claim 6 for preventing the loss of brightness and for enhancing resistance to yellowing of a chemimechanical or thermomechanical pulp or paper which still contain lignin.

1731  
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I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

Deborah A. Pinori  
Type or print name

Signature

May 22, 2003  
Date

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF  
GLEN T. CUNKLE, ET AL.  
APPLICATION NO: 09/658,924  
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PULP OR PAPER

Group Art Unit: 1731  
Examiner: Marc S. Alvo

Commissioner for Patents  
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Alexandria, VA 22313-1450

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TC 1731TRANSMITTAL LETTER

Sir:

Enclosed herewith are three copies of the Appeal Brief in the above-identified application.

Please charge Deposit Account No. 03-1935 in the amount of \$320.00 for payment of the fee. Two additional copies of this paper are here enclosed. The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Account No. 03-1935.

Enclosed is a Petition for Extension of time.

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5/22/2003



Tyler A. Stevenson  
Agent for Applicants  
Reg. No. 46,388

05/28/2003 JBALINAH 00000064-031935 09658924

01-FC-1402 320.00 CH